

Claims:

1. Device for collecting biometric data, in particular finger prints, the device having an optically active detector for recording the surface of body areas, **characterised in that** in the beam path (7) between the surface (33) and the detector (1) a mirror (2) is provided.
2. Device according to claim 1, **characterised in that** the mirror (2) is designed either curved or bent, in particular like a U (21) or a half-ring.
3. Device according to one or both of the preceding claims, **characterised in that** the mirror (2) is shaped as ring mirror (20).
4. Device according to one or more of the preceding claims, **characterised by** a conical shape of the mirror (2).
5. Device according to one or more of the preceding claims, **characterised in that** the partial surface (32) of the surface (33) which can be scanned by the mirror (2) is small in the relation to the complete surface (33) of the body part (3) which has to be recorded.
6. Device according to one or more of the preceding claims, **characterised in that** an illumination (5) is provided for the body region (3) which has to be scanned.
7. Device according to one or more of the preceding claims, **characterised in that** as illumination (5) a green light source is provided.

8. Device according to one or more of the preceding claims,
characterised in that the illumination (5) is arranged
below the body region (3).
9. Device according to one or more of the preceding claims,
characterised in that the illumination (5) is stripe-
like, in particular designed as LED array (50).
10. Device according to one or more of the preceding claims,
characterised by a semipermeable mirror (2) designed as
partial mirror for introducing the light of an
illumination (5) into the beam path (7).
11. Device according to one or more of the preceding claims,
characterised in that the path of rays between mirror (2)
and detector (1) is either parallel or acute to the
longitudinal extension (34) of the body region (3) which
has to be recorded.
12. Device according to one or more of the preceding claims,
characterised in that in the beam path (7) between the
surface (33) and the detector (1), in particular between
mirror (2) and detector (1), an objective (10) is
provided.
13. Device according to one or more of the preceding claims,
characterised in that the magnification of the objective
is chosen in such a way that the local element which has
to be defined on the body is imaged at least on one
element (pixel) of the detector.
14. Device according to one or more of the preceding claims,
characterised by a telecentric imaging.

15. Device according to one or more of the preceding claims,
characterised by a front lens of the objective which corresponds at least to the size of the object.
16. Device according to one or more of the preceding claims,
characterised by a rectangular front lens.
17. Device according to one or more of the preceding claims,
characterised by a relative movement (4) between the body region (3) and at least the mirror (2).
18. Device according to one or more of the preceding claims,
characterised by a relative movement (4) either parallel or essentially parallel to the longitudinal extension (34) of the body region (3) which has to be recorded.
19. Device according to one or more of the preceding claims,
characterised in that at least the mirror (2) is stationary during recording, and the relative movement (4) is deducted from the movement of the body region (3).
20. Device according to one or more of the preceding claims,
characterised by a movement of the mirror (2) at least during recording the body region (3).
21. Device according to one or more of the preceding claims,
characterised in that detector (1) and mirror (2) as well as, if necessary, the objective are combined as sensor head, and the sensor head can move, in particular move linear.
22. Device according to one or more of the preceding claims,
characterised by contact-free scanning of the body region (3).

23. Collection arrangement for simultaneously collecting biometric data, like fingerprints, of different body regions, in particular fingers, the collection arrangement being equipped with at least two devices, in particular according to one or more of the preceding claims, for collecting biometric data, the device having at least one optically active detector for recording the surface of body regions, and a first device being provided for recording a first body region, and a second device being provided for recording a second body region, and the collection arrangement having a spreading device which spreads apart the body regions in such a way that even lateral recordings of the body regions become possible by means of the detector.

24. Collection arrangement according to the preceding claim, **characterised in that** the spreading device (80) is designed as stoppers (82), in particular as cylindrical stoppers, which have to be arranged between the body regions, in particular the fingers (30) of a hand (35), and the mirrors of the device are located below the body regions, respectively the fingers.

25. Collection arrangement according to one or both of the preceding claims 23 to 24, **characterised in that** the spreading device (80) effects a spreading of the fingers of a hand introduced into the collection arrangement of 10° to 20° each, preferably about 15° , between two adjacent fingers (30).

26. Collection device according to one or more of the preceding claims 23 to 25, **characterised in that** the collection arrangement (8) has a supporting surface (80) in which slots or openings with optically transparent covers are provided, and the mirrors (2) are each

arranged in the region of the slot, respectively indentation.

27. Collection arrangement according to one or more of the preceding claims 23 to 26, **characterised in that** the supporting surface (80) forms grooves for receiving fingers (30), respectively the palm, and the arrangement of the grooves effect a spreading device.

28. Collection arrangement according to one or more of the preceding claims 23 to 27, **characterised in that** two, in particular adjacent, devices (9) share an objective.

29. Collection arrangement according to one or more of the preceding claims 23 to 28, **characterised in that** for each finger (30) an individual, movable sensor head is provided, and adjacent sensor heads can each move in the opposite direction of each other.

30. Collection arrangement according to one or more of the preceding claims 23 to 29, **characterised in that** for each finger (30) an individual, movable sensor head is provided, and each sensor head is movable longitudinally, in particular in the direction of the longitudinal extension of the respective finger.

31. Collection arrangement according to one or more of the preceding claims 23 to 30, **characterised by** a locking arrangement of the hand and/or the individual fingers on or in the collection arrangement.

32. Method for collecting biometric data, for example a finger print, where a detector records at least one picture of a first partial surface of the surface which has to be recorded, after that occurs a relative movement

between the detector and the body region, and after that the detector records at least one picture of a second partial surface of the surface of the body region which has to be recorded.

33. Method for collecting biometric data, for example a finger print, where a sensor head comprising a detector and an imaging optic records at least one picture of a first partial surface of the surface of the body region which has to be recorded, after that a relative movement occurs between the body region and the sensor head, respectively parts of the sensor head, and after that the sensor head records at least one picture of a second partial surface of the surface of the body region which has to be recorded.

34. Method according to one or both of the preceding claims, **characterised in that** the relative movement is carried out either parallel or essentially parallel to the longitudinal extension of the body part.

35. Method according to one or more of the preceding claims 32 to 34, **characterised in that** the detector files the picture recorded from the partial surfaces correlated in their order in a storage.

36. Method according to one or more of the preceding claims 32 to 35, **characterised in that** the picture of the first and the second partial surface overlap at least partly.

37. Method according to one or more of the preceding claims 32 to 36, **characterised in that** in the beam path between the body region and the detector a mirror at least partially curved, respectively bent is provided, if

necessary as part of the imaging optic, and the detector records a picture of the curved partial surface.

38. Method according to one or more of the preceding claims 32 to 37, **characterised in that** in a picture processing module the pictures filed in the storage are combined to a three-dimensional image of the recorded surfaces.

39. Method according to one or more of the preceding claims 32 to 38, **characterised in that** the picture processing module equalises the image and/or the single pictures.

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